

APPENDIX H

Utilities

**SEWER SYSTEM EVALUATION
FOR THE
BALDWIN AND SONS VILLAGE 2
SPA AMENDMENT**

March 4, 2014



**Prepared by:
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Job No. 605-826

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March 4, 2014

605-826

Baldwin and Sons
610 W. Ash Street, Suite 1500
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Attention: Nick Lee, Project Manager

Subject: Village 2 Comprehensive SPA Amendment Sewer System Evaluation

Background

The Sectional Planning Area Plan (SPA Plan) for Villages 2, 3 and a portion of 4 was approved on May 23, 2006. In 2007, the Village 2 Tentative Map was amended twice through substantial conformance requests and there were more amendments approved in 2012.

The Village 2 SPA property is split into many ownerships. Baldwin and Sons is the majority owner within Village 2 and is proposing a comprehensive SPA Plan Amendment. Within the Baldwin and Sons ownership, the comprehensive SPA project proposes adding 1,564 residential units, an elementary school, park, and CPF sites. The study also takes into consideration 197 additional units that were approved in other areas of Village 2 (JPB Amendment).

Purpose

The purpose of this letter-report is to provide an evaluation of the effect that this additional development will have on the Village 2 sewer system and off-site sewer facilities. This letter-report is a supporting document to the SPA Plan Amendment and Tentative Maps being processed by Baldwin and Sons.

Land Use Summary

Table 1 summarizes the previously approved units in Village 2 along with the proposed additional development being proposed by this Comprehensive SPA Amendment. The previously approved development includes development approved with the original SPA Plan in 2006 along with two substantial conformance requests processed in 2007 and the 2012 amendments.

TABLE 1 BALDWIN AND SONS DEVELOPMENT PLAN SUMMARY COMPREHENSIVE SPA AMENDMENT					
Neighborhood	Sewer Basin	Acres	Approved Units/Acres	Proposed Add'l Units	Total Units
Residential (Baldwin and Sons)					
R-4b(a)	Poggi	13.6	68	43	111
R-4b(b)	Poggi	10.8	---	275	275
R-5b	Poggi	4.2	35	3	38
R-6	Poggi	12.6	126	0	126
R-8a	Poggi	7.5	48	0	48
R-8b	Poggi	3.8	29	0	29
R-8c	Poggi	10.5	0	51	51
R-9b	Poggi	8.4	68	7	75
R-10a	Poggi	2.1	34	10	44
R-10b	Poggi	2.4	51	10	61
R-11	Poggi	9.9	146	60	206
R-12	Poggi	23.6	325	275	600
R-13	Poggi	10.4	137	0	137
R-14	Poggi	9.1	165	0	165
R-15b	Poggi	3.4	21	6	27
R-16b	Poggi	1.8	35	(18)	17
R-17b(a)	Wolf	8.7	75	(41)	34
R-17b(b)	Wolf	4.6	---	95	95
R-18a(b)	Wolf	4.3	27	(3)	24
R-18b(b)	Wolf	0.8	5	0	5
R-19(b)	Wolf	4.2	33	6	39

TABLE 1 BALDWIN AND SONS DEVELOPMENT PLAN SUMMARY COMPREHENSIVE SPA AMENDMENT					
Neighborhood	Sewer Basin	Acres	Approved Units/Acres	Proposed Add'l Units	Total Units
R-20	Wolf	19.5	75	5	80
R-21(b)	Wolf	17.1	50	3	53
R-23	Wolf	13.5	48	45	93
R-24	Wolf	2.4	28	31	59
R-25a	Wolf	13.2	24	306	330
R-25b	Wolf	2.7	24	(24)	0
R-26	Wolf	---	75	(75)	0
R-27	Wolf	8.3	61	114	175
R-31	Poggi	1.1	0	25	25
Subtotal Residential Baldwin and Sons			1,813	1,209	3,022
Residential (Others)					
R-4a	Poggi	---	62	0	62
R-5a	Poggi	---	95	0	95
R-7a	Poggi	---	82	0	82
R-9a	Poggi	---	67	0	67
R-15	Poggi	---	16	0	16
R-16	Poggi	---	38	0	38
R-17	Wolf	---	44	0	44
R-18	Wolf	---	81	0	81
R-19	Wolf	---	50	0	50
R-21	Wolf	---	14	0	14
R-28	Poggi	---	96	0	96
R-29	Poggi	---	187	0	187
R-30	Poggi	---	278	0	278
Subtotal Residential (Others)			1,110	0	1,110
Mixed Use/Commercial					
MU-1	Poggi	1.8	10	28	38
MU-2	Poggi	1.4	12	38	50
MU-3	Poggi	4.3	38	52	90
C-1	Poggi	12.5	0	235	235
Subtotal MU/Commercial			60	353	413

TABLE 1 BALDWIN AND SONS DEVELOPMENT PLAN SUMMARY COMPREHENSIVE SPA AMENDMENT					
Neighborhood	Sewer Basin	Acres	Approved Units/Acres	Proposed Add'l Units	Total Units
Industrial					
IND-1(a) (Others)	Poggi	25.9	25.9	0	25.9
IND-1 (b)	Poggi	33.7	33.7	0	33.7
IND-2	Wolf	5.8	5.8	2.7	8.5
IND-3 ¹	Wolf	29.0	29.0	(1.0)	28.0
Subtotal Industrial		94.4	94.4	1.7	96.1
Parks					
P-1	Poggi	0	1.4	0	1.4
P-2	Poggi	7.1	7.1	0	7.1
P-3	Poggi	7.7	6.9	0.8	7.7
P-4	Wolf	40.4	40.4	4.2	44.6
P-5	Wolf	5.1	0	5.1	5.1
P-6	Poggi	2.7	0	2.7	2.7
Subtotal Parks			55.8	12.8	68.6
CPF					
CPF-1	Poggi	1.2	1.2	0	1.2
CPF-2	Wolf	0.9	0.9	0	0.9
CPF-3a	Poggi	1.1	1.1	(1.1)	0
CPF-3b	Poggi	0	0.8	(0.8)	0
CPF-4	Poggi	1.5	1.5	(1.5)	0
CPF-5	Poggi	0.8	0.8	(0.8)	0
CPF-7	Poggi	1.0	0	1.0	1.0
CPF-8	Wolf	0.5	0	0.5	0.5
CPF-9 ¹	Poggi	9.0	0	9.0	9.0
Subtotal CPF		12.6	6.3	6.3	12.6
Other					
S-1	Poggi	10.3	10.3	0	10.3
S-2	Wolf	9.5	0	9.5	9.5
Open Space	---	200.2	200.2	0	200.2
TOTAL			2,981	1,564	4,545

¹ CPF-9 is included in the IND-3 site.

Planning Criteria

To evaluate the projected sewage flows from the project, the sewage generation factors in Table 2 were utilized.

TABLE 2 SEWAGE GENERATION FACTORS	
Land Use	Average Sewage Flow
Single Family Residential	265 gpd/unit
Multi-Family Residential	198.75 gpd/unit
Commercial/CPF	2,500 gpd/ac
Industrial	2,500 gpd/ac
Park	520 gpd/ac

To convert average daily flow to peak wet weather flows, the population based peaking factor curve (CVD-SW01) provided in the City of Chula Vista Subdivision Manual was utilized. All gravity sewers have been designed to convey peak wet weather flow. For pipes with a diameter of 12-inches and smaller, the sewers have been designed to convey this flow when flowing half full. For pipes with a diameter of larger than 12-inch, the sewers have been designed to convey peak wet weather flow when flowing three-fourths full by depth. Manning's equation with $n=0.012$ was used to size all new PVC gravity sewers. All new sewer were designed to maintain a minimum velocity of two feet per second at design capacity to prevent the deposition of solids.

Projected Sewer Flows

To evaluate the impact that proposed land use changes will have on the sewer collection system, an estimate of projected sewage flows is necessary. The February 2006 Overview of Sewer Service provided the projected sewer flows when the project was initially approved.

Table 3 provides a summary of projected flow by sewer basin from the approved land use plan and the proposed comprehensive SPA Amendment. Only neighborhoods with proposed land use changes were included in Table 3. Table 4 provides a summary of projected flows and as shown development of the project, including the recently approved JPB amendment and recent EUC projections, would increase Poggi Canyon flows by 298,550 gpd, or 1,126 EDUs and Wolf Canyon flows by 128,315 gpd, or 484 EDUs.

TABLE 3 SEWER FLOW PROJECTIONS BALDWIN AND SONS COMPREHENSIVE SPA AMENDMENT				
Neighborhood	Quantity	Unit Flow Factor	Total Flow gpd	EDUs
Approved Land Use Plan				
Poggi Basin				
R-4	130 units	265	34,450	130
R-5	130 units	198.75	25,840	97.5
R-8	77 units	265	20,405	77
R-9	135 units	265	35,775	135
R-10	85 units	198.75	16,890	63.8
R-11	146 units	198.75	29,020	109.5
R-12	325 units	198.75	64,590	243.7
R-15	37 units	265	9,805	37
R-16	73 units	198.75	14,510	54.8
MU-1 MF	10 units	198.75	1,990	7.5
MU-2 MF	12 units	198.75	2,390	9
MU-3 MF	38 units	198.75	7,550	28.5
CPF-3	1.9 ac	2,500	4,750	17.9
CPF-4	1.5 ac	2,500	3,750	14.2
CPF-5	0.8 ac	2,500	2,000	7.5
CPF-6	0 ac	2,500	0	0
CPF-7	0 ac	2,500	0	0
CPF-9	0 ac	2,500	0	0
P-1	1.4 ac	500	700	2.6
P-3	6.9 ac	500	3,450	13
Subtotal Poggi Basin			277,865	1,049
Wolf Basin				

**TABLE 3
SEWER FLOW PROJECTIONS
BALDWIN AND SONS COMPREHENSIVE SPA AMENDMENT**

Neighborhood	Quantity	Unit Flow Factor	Total Flow gpd	EDUs
R-17	119 units	198.75	23,650	89.3
R-18	113 units	265	29,945	113
R-19	83 units	265	22,000	83
R-20	75 units	265	19,875	75
R-21	64 units	265	16,960	64
R-23	48 units	265	12,720	48
R-24	28 units	265	7,420	28
R-25	48 units	265	12,720	48
R-26	75 units	198.75	14,910	56.2
R-27	61 units	198.75	12,120	45.7
IND-2	5.8 ac	2,500	14,500	54.7
IND-3	29.0 ac	2,500	72,500	273.6
P-4	40.4 ac	500	20,200	76.2
Subtotal Wolf Basin			279,520	1,055
TOTAL Approved Land Use Plan¹			557,385	2,103
Comprehensive SPA Amendment				
Poggi Basin				
Baldwin and Sons				
R-4b(a)	111 units	265	29,415	111
R-4b(b)	275 units	198.75	54,660	206.3
R-5b	38 units	198.75	7,550	28.5
R-8a	48 units	265	12,720	48
R-8b	29 units	265	7,685	29
R-8c	51 units	265	13,515	51
R-9b	75 units	265	19,875	75
R-10a	44 units	198.75	8,745	33
R-10b	61 units	198.75	12,120	45.8
R-11	206 units	198.75	40,940	154.5
R-12	600 units	198.75	119,250	450
R-15	27 units	265	7,160	27
R-16(b)	17 units	198.75	3,380	12.8
MU-1 MF	38 units	198.75	7,550	28.5

**TABLE 3
SEWER FLOW PROJECTIONS
BALDWIN AND SONS COMPREHENSIVE SPA AMENDMENT**

Neighborhood	Quantity	Unit Flow Factor	Total Flow gpd	EDUs
MU-2 MF	50 units	198.75	9,940	37.5
MU-3 MF	90 units	198.75	17,890	67.5
C-1 MF	235 units	198.75	46,710	176.3
R-31	25 units	198.75	4,970	18.7
CPF-3b	0 ac	2,500	0	0
CPF-4	0 ac	2,500	0	0
CPF-5	0 ac	2,500	0	0
CPF-7	1.0 ac	2,500	2,500	9.4
CPF-9	9.0 ac	2,500	22,500	84.9
P-1	1.4 ac	500	700	2.6
P-3	7.7 ac	500	3,850	14.5
P-6	2.7 ac	500	1,350	5.1
Subtotal Baldwin and Sons			454,975	1,717
Other Owners				
R-4a	62 units	265	16,430	62
R-5a	95 units	198.75	18,880	71.2
R-9a	67 units	265	17,760	67
R-10a	34 units	198.75	6,760	25.5
R-15	16 units	265	4,240	16
R-16	38 units	198.75	7,550	28.5
Subtotal Other Owners			71,620	270
TOTAL Poggi Basin			526,595	1,987
Wolf Basin				
Baldwin and Sons				
R-17B(a)	34 units	198.75	6,760	25.5
R-17B(b)	95 units	198.75	18,880	71.3
R-18A(b)	24 units	265	6,360	24
R-18B(b)	5 units	265	1,330	5
R-19(b)	39 units	265	10,340	39
R-20	80 units	265	21,200	80
R-21(b)	53 units	265	14,040	53
R-23	93 units	265	24,650	93

**TABLE 3
 SEWER FLOW PROJECTIONS
 BALDWIN AND SONS COMPREHENSIVE SPA AMENDMENT**

Neighborhood	Quantity	Unit Flow Factor	Total Flow gpd	EDUs
R-24	59 units	265	15,635	59
R-25A	330 units	198.75	65,590	247.5
R-26	0 units	198.75	0	0
R-27	175 units	198.75	34,780	131.2
CPF-8	0.5 ac	2,500	1,250	4.7
P-5	5.1 ac	500	2,550	9.6
S-2	9.5 ac	2,500	23,750	89.6
IND-2	8.2 ac	2,500	21,250	80.2
IND-3	28.0 ac	2,500	70,000	264.2
P-4	44.6 ac	500	22,300	84.1
Subtotal Baldwin and Sons			360,665	1,361
Other Owners				
R-17	44 units	198.75	8,750	33
R-18	38 units	265	21,460	81
R-19	50 units	265	13,250	50
R-21	14 units	265	3,710	14
Subtotal Other Owners			47,170	178
TOTAL Wolf Basin			407,835	1,539

[†] Only includes neighborhoods with proposed land use changes

TABLE 4 SEWER FLOW SUMMARY ¹				
Description	Poggi Basin		Wolf Basin	
	Avg Flow, gpd	EDUs	Avg Flow, gpd	EDUs
Approved Plan	277,865	1,049	279,520	1,055
Comprehensive SPA Amendment	526,595	1,987	407,835	1,539
Increase	248,730	938	128,315	484
JPB Amendment	42,400	160	0	0
EUC ²	7,420	28 ²	----	----
TOTAL INCREASE	298,550	1,126	128,315	484

¹ Only includes neighborhoods in Village 2 with land use changes.

² The 2009 PMC Study estimated 429 EDUs from the EUC and the current estimate from Atkins is 457 EDUs.

Onsite Sewer System

Within the Poggi Canyon Basin, sewer is conveyed to the Poggi Canyon Interceptor at Heritage Road and at Santa Venetia Street. The backbone sewer lines serving these areas have already been installed. Appendix B contains a hydraulic analysis of these sewer lines using as-built pipe size and slope data. These lines were evaluated under the cumulative project scenario. As shown, all sewer lines will flow at a d/D of 0.51 or less during the cumulative project condition. Therefore, no upgrades to the Village 2 onsite sewer system are recommended based on the cumulative project scenario. The sewer lines within the Wolf Canyon Basin have not yet been designed. The design and sizing of these lines will need to take into account the additional 484 EDUs as a result of this project amendment.

Poggi Canyon Interceptor

The available capacity in the Poggi Canyon Interceptor was evaluated under cumulative project conditions. Data on the Poggi Canyon Interceptor was obtained from the April 2009

Poggi Canyon Basin Gravity Sewer Development Impact Fee Update prepared by PMC. Data from this report includes existing permitted EDUs in the basin as well as committed EDUs based on previous project approvals.

Table 5 summarizes the impact that adding 1,126 EDUs as a result of the cumulative project would have on permitted and committed remaining capacity. Exhibit A identifies the reach locations and indicates where Village 2 connects to the Poggi Interceptor. As shown in Table 5, the two reaches already identified for future replacement are shown as being over capacity and one additional reach is shown to be slightly over capacity. This additional reach is P345 to P363 which is an 18" pipe that is shown to be 99 EDUs over capacity. Upon approval of the Comprehensive Amendment, the Poggi Basin Gravity Sewer Development Impact Fee should be updated to reflect the additional units and additional improvement identified in Table 5.

Salt Creek Interceptor

The available capacity in the Salt Creek Interceptor was analyzed under baseline and cumulative conditions in a November 2010 report prepared by PBS&J. This analysis was updated by Atkins in a memorandum dated February 28, 2014 to include additional flows resulting from the Village 2 SPA Amendment and land use changes in Planning Area 12. The updated analysis is provided as Appendix C for reference and concludes that these additional flows do not result in capacity deficiencies in the Salt Creek Interceptor.

Conclusion

Although the proposed densification within the cumulative project will exceed the units foreseen in the 2009 Poggi DIF update, the limits of the required DIF improvements remain the same with the exception of pipe segment P345 to P365 which is shown to be slightly over capacity at revised build out conditions. The current cost related to the DIF improvements has been identified in the Poggi DIF program and any amendment project will be required to update the Poggi DIF study as a condition of approval for the project. This letter-report also verifies that the onsite sewer system for Village 2 is adequate to

Nick Lee
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serve the proposed project. Although no additional improvements to the Salt Creek Interceptor are proposed as a result of this study, the Salt Creek DIF Study will need to be updated as a condition of approval for this project to reflect the additional proposed units from the project.

If you have any questions or require additional information, please let us know.

Dexter Wilson Engineering, Inc.



Stephen M. Nielsen, P.E.

SMN:ps

Enclosure



TABLE 5
POGGI CANYON INTERCEPTOR SUMMARY
CUMULATIVE PROJECT SCENARIO

Reach	Capacity at d/D=0.85 EDUs	PMC Study Permitted EDUs		PMC Study ¹ Committed EDU's		Cumulative Project Amendment		
		Current	Remaining Capacity	Current	Remaining Capacity	Additional EDUs	Net EDUs Permitted Remaining	Net Committed Remaining EDUs
P102 to P140	18,367	11,602	6,765	16,204	2,163	1,126	5,639	1,037
P140 to P175R	22,192	11,602	10,591	16,204	5,988	1,126	9,465	4,862
P175R to P195	35,898	11,602	24,296	16,204	19,694	1,126	23,170	18,568
P195 to P230	18,367	10,726	7,640	15,328	3,039	1,126	6,514	1,913
P230 to P240	16,427	10,053	6,374	14,655	1,772	1,126	5,248	646
P240 to P253R	16,427	10,053	6,374	14,655	1,772	1,126	5,248	646
R253R to P270	12,175	9,763	2,412	14,365	(2,190)	1,126	1,286	(3,316)
P270 to P305	12,175	8,587	3,589	13,125	(950)	1,126	2,463	(2,076)
P305 to P310	38,503	8,587	29,916	12,609	25,894	1,126	28,790	24,768
P310 to P345	17,047	8,447	8,600	12,469	4,578	1,126	7,474	3,452
P345 to P365	13,339	8,289	5,049	12,312	1,027	1,126	3,923	(99)
P365 to P405	17,305	8,289	9,016	11,590	5,715	1,126	7,890	4,589
P405 to P410	13,339	7,770	5,569	11,070	2,269	1,126	4,443	1,143
u/s P410 to SR125	13,339	6,605	6,733	9,906	3,433	1,126	5,607	2,307

¹ Committed EDUs do not include interim 464 EDUs from Village 7, 281 EDUs from EUC

APPENDIX A

OWNERSHIP MAP/LAND USE PLAN

CITY OF CHULA VISTA, CALIFORNIA

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APPENDIX B

ONSITE SEWER SYSTEM HYDRAULIC ANALYSIS

Village 2 North Sewer System Analysis Manhole Loading Summary Cumulative Project Scenario					
Manhole	Neighborhood	Land Use	Quantity	Generation Factor	Average Flow, gpd
16	Part R-4	SF Res.	39 units	265	10,335
	P-6	Park	2.7ac	500	1,350
	R-25B	MF Res.	62 units	199	12,322
	Subtotal				24,007
20	R-5	MF Res.	133 units	199	26,430
	1/2 R-9	SF Res.	77 units	265	20,405
	Subtotal				46,835
22	P-1	Park	1.4 ac	500	700
	CPF-7	CPF	1.0 ac	2,500	2,500
	R-28	MF Res.	96 units	199	19,080
	MU-1	MF Res.	38 units	199	7,552
	P-2	Park	7.1 ac	500	3,550
	S-1	School	750 student	15	11,250
	R-10	MF Res.	95 units	199	18,880
	R-11	MF Res.	220 units	199	43,725
	Subtotal				107,237
34	1/2 R-6	SF Res.	43 units	265	11,395
36	1/2 R-6	SF Res.	44 units	265	11,660
	R-7	SF Res.	82 units	265	21,730
	R-8	SF Res.	92 units	265	24,380
	1/2 R-9	SF Res.	78 units	265	20,670
	CPF-1	Community	1.2 ac	2,500	3,000
	Subtotal				81,440
108	R-12	MF Res.	600 units	199	119,250
	CPF-2	CPF	0 ac	0	0
	Subtotal				119,250
113	R-13	MF Res.	137 units	199	27,263
118	R-30	MF Res.	278 units	199	55,322
119	P-3	Park	7.7 ac	500	3,850
120	MU-3	MF Res.	90 units	199	17,890
	MU-3	Comm.	4.3 ac	2,500	10,750
	Subtotal				28,640
124	R-14	MF Res.	165 units	199	32,835
	R-15	SF Res.	43 units	265	11,395
	R-16	MF Res.	55 units	199	10,930
	R-29	MF Res.	187 units	199	37,170
	MU-2	MF Res.	50 units	199	9,940
	MU-2	Comm.	2.4 ac	2,500	6,000
	C-1	MF Res.	235 units	199	46,706
	C-1	Comm.	2.5 ac	2,500	6,250
	CPF-3	CPF	0 ac	2,500	0
	CPF-4	CPF	0 ac	2,500	0
	Subtotal				161,226

DATE: 12/2/2013
JOB NUMBER: 605-826

FOR: VILLAGE 2 NORTH SEWER SYSTEM ANALYSIS
COMPREHENSIVE SPA AMENDMENT

UP MH	DOWN MH	AVG. FLOW GPD		PEAK FACTOR	PEAK FLOW (gpd)	PEAK FLOW		LINE SIZE (inches)	DESIGN SLOPE (%)	DEPTH K' ⁽¹⁾	dn (feet)	dn/D ⁽²⁾	C _a for Velocity ⁽³⁾	VELOCITY (f.p.s.)	Remarks
		IN-LINE	TOTAL			M.G.D.	C.F.S.								
22	20	107237	107237	2.38	255,224	0.26	0.39	8	1.00	0.139722	0.25333	0.38	0.27	3.25	P1,CPF7,R28,P2,S1,R10,R11,MU1
20	18	46835	154072	2.28	351,284	0.35	0.54	8	1.00	0.192310	0.30000	0.45	0.34	3.57	R5,1/2R9
18	16	0	154072	2.28	351,284	0.35	0.54	8	3.35	0.105070	0.21333	0.32	0.22	5.56	
16	14	24007	178079	2.23	397,116	0.40	0.61	8	1.86	0.159406	0.26667	0.40	0.30	4.64	R4 (39 UNITS), R25B, P-6
14	12	0	178079	2.23	397,116	0.40	0.61	8	4.76	0.099645	0.20667	0.31	0.21	6.58	
12	10	0	178079	2.23	397,116	0.40	0.61	8	4.81	0.099126	0.20667	0.31	0.21	6.58	
10	8	0	178079	2.23	397,116	0.40	0.61	8	4.24	0.105579	0.21333	0.32	0.22	6.28	
8	6	0	178079	2.23	397,116	0.40	0.61	8	1.78	0.162948	0.27333	0.41	0.30	4.56	
6	5	92835	270914	2.10	568,919	0.57	0.88	10	1.78	0.128753	0.30000	0.36	0.25	4.98	FLOW FROM MANHOLE 30
5	4	0	270914	2.10	568,919	0.57	0.88	10	4.16	0.084221	0.24167	0.29	0.19	6.71	
4	2	0	270914	2.10	568,919	0.57	0.88	10	1.00	0.171778	0.35000	0.42	0.31	4.05	
36	34	81440	81440	2.50	203,600	0.20	0.32	8	1.00	0.111460	0.22000	0.33	0.23	3.14	1/2R6,R7,R8,1/2R9,CPF1
34	32	11395	92835	2.50	232,088	0.23	0.36	8	1.00	0.127056	0.24000	0.36	0.25	3.17	1/2R6
32	30	0	92835	2.50	232,088	0.23	0.36	8	1.00	0.127056	0.24000	0.36	0.25	3.17	
30	6	0	92835	2.50	232,088	0.23	0.36	8	1.00	0.127056	0.24000	0.36	0.25	3.17	
124	122	161226	161226	2.26	364,371	0.36	0.56	8	1.00	0.199474	0.30667	0.46	0.35	3.60	R14,R15,R16,R29,MU2,C1,CPF3,4
122	120	0	161226	2.26	364,371	0.36	0.56	8	4.51	0.093929	0.20000	0.30	0.20	6.37	
120	119	28640	189866	2.22	421,503	0.42	0.65	8	1.00	0.230751	0.33333	0.50	0.39	3.76	MU3
119	118	3850	193716	2.22	430,050	0.43	0.67	8	1.00	0.235430	0.34000	0.51	0.40	3.76	P3
118	117	55322	249038	2.14	532,941	0.53	0.82	10	1.00	0.160915	0.34167	0.41	0.30	3.92	R30
117	116	0	249038	2.14	532,941	0.53	0.82	10	1.00	0.160915	0.34167	0.41	0.30	3.92	
116	114	0	249038	2.14	532,941	0.53	0.82	10	1.80	0.119939	0.29167	0.35	0.24	4.87	
114	113	0	249038	2.14	532,941	0.53	0.82	10	1.70	0.123416	0.29167	0.35	0.25	4.83	
113	112	27263	276301	2.12	585,758	0.59	0.91	10	1.70	0.135647	0.30833	0.37	0.26	4.94	R13
112	110	0	276301	2.12	585,758	0.59	0.91	10	0.76	0.202874	0.38333	0.46	0.35	3.70	
110	108	0	276301	2.12	585,758	0.59	0.91	10	1.64	0.138106	0.30833	0.37	0.26	4.94	
108	106	119250	395551	2.02	799,013	0.80	1.24	12	1.62	0.116563	0.34000	0.34	0.24	5.25	R12
106	104	0	395551	2.02	799,013	0.80	1.24	12	2.15	0.101181	0.32000	0.32	0.22	5.71	
104	102	0	395551	2.02	799,013	0.80	1.24	12	5.22	0.064936	0.25000	0.25	0.15	8.05	
102	100	0	395551	2.02	799,013	0.80	1.24	12	2.00	0.104907	0.32000	0.32	0.22	5.67	

¹ K' based on n = 0.012
² dn/D using K' in Brater King Table 7-14
³ From Brater King Table 7-4 based on dn/D

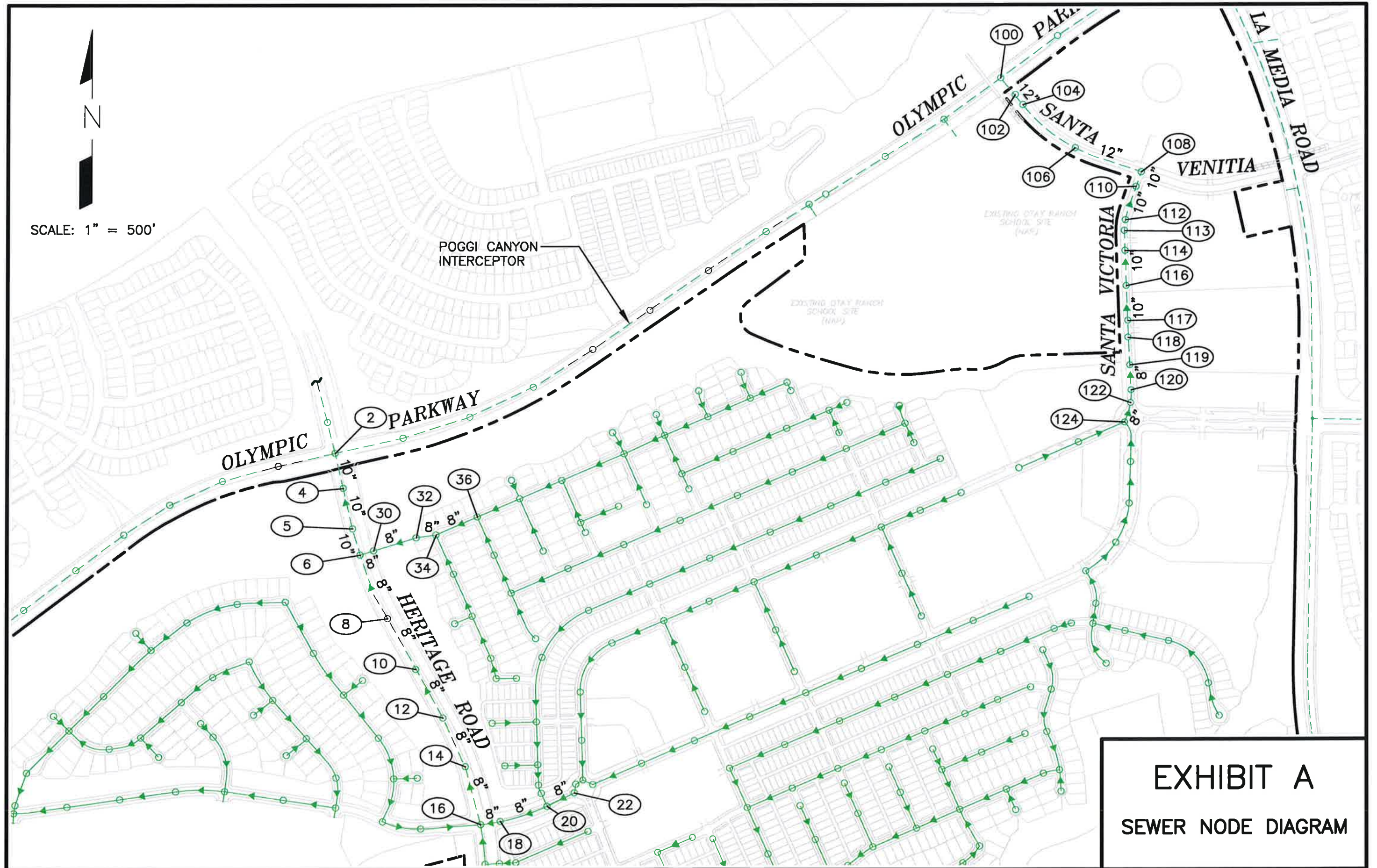
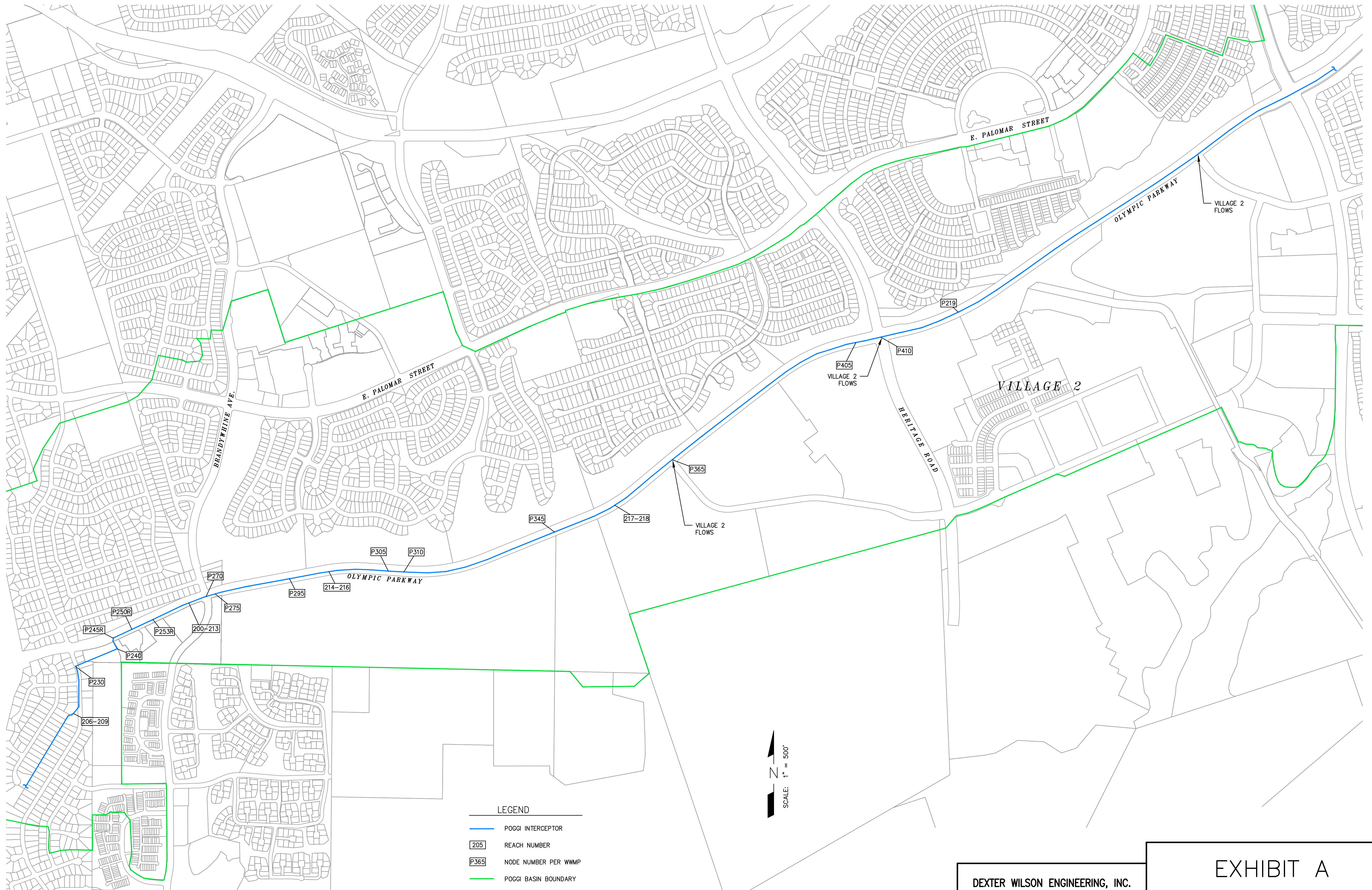


EXHIBIT A

SEWER NODE DIAGRAM

\\PACIFIC.DWG 605825 EXHIBIT_A.DWG 04-26-11 16:17:59 LAYOUT: LAYOUT



LEGEND	
	POGGI INTERCEPTOR
	REACH NUMBER
	NODE NUMBER PER WWMP
	POGGI BASIN BOUNDARY

DEXTER WILSON ENGINEERING, INC.
CONSULTING ENGINEERS
2234 FARADAY AVENUE
CARLSBAD, CA 92008 (760) 438-4422

EXHIBIT A

POGGI INTERCEPTOR MAP

APPENDIX C

SALT CREEK INTERCEPTOR ANALYSIS



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Memorandum

To: Nick Lee, Baldwin & Sons
Date: February 28, 2014
cc: Steve Nielson, Dexter Wilson Engineering, Inc.
From: Leanne Hammond, PE
Mark Elliott, PE
Project No: 100034168
Subject: Village 2 and Planning Area 12 – Sewer Analysis

This Technical Memorandum documents the available existing capacity within the City of Chula Vista (City) Salt Creek Interceptor and identifies any necessary improvements required to serve the proposed Village 2 and Planning Area 12 development increases (Project).

Project Overview

Planning Area 12 (PA 12)

Poggi Canyon Basin: The previous land use plan in effect at the time of the *2010 Salt Creek Interceptor Technical Sewer Study for the South Otay Ranch (Village 8 West and Village 9)* included 325.5 EDUs from PA 12. Based on the current land use statistics provided by Dexter Wilson Engineering, Inc., the development intensity for PA 12 has increased by 339.6 EDUs to a total of 665.1 EDUs. These flows drain to the Poggi Interceptor and connect to the Salt Creek Interceptor (SCI) at Node S83 in the hydraulic sewer model.

Village 2

Poggi Canyon Basin: The previously approved EDUs in the Poggi Canyon Basin was 2,780 EDUs per the *PMC DIF Report* (2009). With the proposed SPA Amendment, the EDUs have increased by 1,098 EDUs in the Poggi Basin to a total of 3,878 EDUs. These flows drain to the Poggi Interceptor and connect to the SCI at Node S83 in the hydraulic sewer model.

Wolf Canyon Basin: The *2010 Salt Creek Interceptor Technical Sewer Study for the South Otay Ranch (Village 8 West and Village 9)* included 1092.4 EDUs from the Village 2 project. The SPA Amendment will increase this by 484 EDUs to a total of 1576.4 EDUs. These flows will all be conveyed in Heritage Road and connect to the SCI at Node S149 in the hydraulic sewer model.

Hydraulic Capacity Analysis

The sewer capacity analysis used the model input data from the *2010 Salt Creek Interceptor Technical Sewer Study for the South Otay Ranch (Village 8 West and Village 9)*, which was updated in InfoWorks CS from the City's 2005 Wastewater Master Plan.

In accordance with the Subdivision Manual, hydraulic capacity thresholds for existing sewer pipelines are defined as a depth to diameter (d/D) ratio of 0.75 for pipelines larger than 12 inches in diameter and 0.5 for pipelines 12 inches in diameter and smaller, as shown in Table 1. The analysis assumes an "n" value of 0.012 and a maximum velocity of 12 feet per second, per the Subdivision Manual.

Table 1. Subdivision Manual Criteria

Condition	Depth to pipe diameter ratio (d/D)
Peak Flow	0.50 for diameters \leq 12 inches
	0.75 for diameters $>$ 12 inches

The sewer model was updated to include Project flows entering the modeled sewed system at Node S83 (Village 2 and Planning Area 12 flows in the Poggi Interceptor) and Node S149 (Village 2 flows), as shown in Exhibit 1 from the *2010 Salt Creek Interceptor Technical Sewer Study for the South Otay Ranch (Village 8 West and Village 9)*.

The existing model was analyzed under the Ultimate Condition, Wet Weather Cumulative Model network.

Summary

Based on the model simulation, the additional EDUs from PA 12 and Village 2 do not result in capacity deficiencies within the SCI. Exhibit 1 presents the modeled sewer system and Project manhole connection points. Model result tables are included in this memo as Attachment A.

Attachments: Exhibit 1, *2010 Salt Creek Interceptor Technical Sewer Study for the South Otay Ranch (Village 8 West and Village 9)*.

Attachment A - Ultimate Condition, Wet Weather Cumulative Model Results

Ultimate Conditions, Wet Weather, Cumulative Model
Upsized Integrated Master Plan Model including Main Street Diversion

U/S Node	D/S Node	Street Name	Diameter (in)	Length (ft)	Slope (%)	Average Flow (gpd)	Max Depth	Peak Flow (cfs)	d/D	Length Exceeding d/D = 0.85	Length Exceeding d/D = 1	Notes
Salt Creek												
S 450	S 449	Hunte Parkway	15	105.8	0.55	900,730	0.62	2.28	0.49			
S 449	S 448	Hunte Parkway	15	379.4	0.64	900,720	0.61	2.28	0.48			
S 448	S 447	Hunte Parkway	15	408.6	0.58	900,720	0.61	2.28	0.48			
S 447	S 446	Hunte Parkway	15	337.9	0.61	900,710	0.60	2.28	0.48			
S 446	S 445	Hunte Parkway	15	394.3	0.68	900,700	0.58	2.28	0.46			
S 445	S 444	Hunte Parkway	15	308.7	5.33	900,700	0.35	2.28	0.28			
S 444	S 443	Hunte Parkway	15	96.0	15.71	900,700	0.42	2.28	0.34			
S 443	S 442	Hunte Parkway	15	307.7	3.46	1,041,590	0.57	2.64	0.46			
S 442	S 441	Hunte Parkway	15	401.7	1.01	1,041,580	0.57	2.64	0.46			
S 441	S 440	Hunte Parkway	15	378.2	1.21	1,041,570	0.54	2.64	0.43			
S 440	S 439	Hunte Parkway	15	358.0	2.50	1,041,560	0.56	2.64	0.44			
S 439	S 438	Hunte Parkway	15	344.4	1.10	1,041,540	0.55	2.64	0.44			
S 438	S 437	Hunte Parkway	15	317.4	1.83	1,041,530	0.49	2.64	0.39			
S 437	S 436	Hunte Parkway	15	374.8	3.56	1,204,040	0.62	3.05	0.49			
S 436	S 435	Salt Creek	15	390.0	1.05	1,204,020	0.62	3.05	0.49			
S 435	S 434	Salt Creek	15	235.3	1.08	1,204,000	0.62	3.05	0.49			
S 434	S 433	Salt Creek	15	392.1	1.05	1,203,970	0.62	3.05	0.49			
S 433	S 432	Salt Creek	15	291.0	1.07	1,203,940	0.61	3.05	0.49			
S 432	S 431	Salt Creek	15	288.7	1.07	1,203,910	0.61	3.05	0.49			
S 431	S 430	Salt Creek	15	357.0	2.38	1,203,880	0.73	3.05	0.59			
S 430	S 429	Salt Creek	18	536.0	0.38	1,203,800	0.84	3.05	0.56			
S 429	S 428	North Creekside Drive	18	56.7	1.78	3,106,680	0.83	7.91	0.55			
S 428	S 427	North Creekside Drive	18	127.3	3.10	3,106,670	0.71	7.91	0.47			
S 427	S 426	North Creekside Drive	18	179.4	3.08	3,106,660	0.72	7.91	0.48			
S 426	S 425	North Creekside Drive	18	322.1	3.00	3,106,630	5.63	7.89	3.76	322.10	322.10	
S 425	S 424	North Creekside Drive	18	391.4	0.43	3,106,560	5.59	7.89	3.73	391.40	391.40	
S 424	S 423	North Creekside Drive	18	337.4	0.43	3,106,490	5.00	7.89	3.34	337.40	337.40	
S 423	S 422	North Creekside Drive	18	320.0	0.52	3,106,420	4.49	7.89	3.00	320.00	320.00	
S 422	S 421	North Creekside Drive	18	375.2	0.34	3,106,320	4.28	7.89	2.86	375.20	375.20	
S 421	S 420	South Creekside Drive	18	214.6	0.45	3,106,270	3.37	7.88	2.25	214.60	214.60	
S 420	S 419	South Creekside Drive	18	279.2	0.44	3,106,200	3.06	7.88	2.04	279.20	279.20	
S 419	S 418	South Creekside Drive	18	331.5	0.43	3,106,110	2.62	7.88	1.75	331.50	331.50	
S 418	S 417	South Creekside Drive	18	234.3	0.44	3,106,040	2.09	7.88	1.40	234.30	234.30	
S 417	S 416	South Creekside Drive	18	376.8	0.43	3,105,930	1.75	7.88	1.16	376.80	376.80	
S 416	S 415	Salt Creek	18	183.3	8.21	3,234,020	0.88	8.20	0.59			
S 415	S 414	Salt Creek	18	291.2	1.64	3,233,960	0.98	8.20	0.65			
S 414	S 413	Salt Creek	18	295.0	1.22	3,233,910	0.96	8.20	0.64			
S 413	S 379	Salt Creek	18	33.0	13.33	3,233,900	1.07	8.20	0.71			
S 379	S 380	Salt Creek	20	9.1	0.88	3,649,820	1.05	9.24	0.63			
S 380	S 381	Salt Creek	20	151.4	0.89	3,649,790	1.05	9.24	0.63			
S 381	S 378	Salt Creek	20	25.0	3.32	3,649,780	0.72	9.24	0.43			
S 378	S 410	Salt Creek	20	8.5	3.30	3,649,780	0.72	9.24	0.43			
S 410	S 377	Salt Creek	20	91.2	6.35	3,649,770	0.77	9.24	0.46			
S 377	S 362	Salt Creek	20	173.3	1.20	3,649,730	0.96	9.24	0.57			
S 362	S 360	Salt Creek	20	346.7	1.07	3,649,650	0.99	9.24	0.59			
S 360	S 358	Salt Creek	20	609.7	2.07	3,649,540	0.88	9.24	0.53			
S 358	S 359	Salt Creek	20	564.0	0.86	3,649,410	1.06	9.24	0.63			
S 359	S 357	Salt Creek	20	596.8	1.57	3,649,240	0.88	9.24	0.53			
S 357	S 356	Salt Creek	24	470.9	0.86	3,649,100	0.94	9.24	0.47			
S 356	S 355	Salt Creek	24	510.3	1.85	3,648,960	0.78	9.24	0.39			

Ultimate Conditions, Wet Weather, Cumulative Model
Upsized Integrated Master Plan Model including Main Street Diversion

U/S Node	D/S Node	Street Name	Diameter (in)	Length (ft)	Slope (%)	Average Flow (gpd)	Max Depth	Peak Flow (cfs)	d/D	Length Exceeding d/D = 0.85	Length Exceeding d/D = 1	Notes
S 355	S 354	Salt Creek	24	511.1	1.26	3,648,810	0.86	9.24	0.43			
S 354	S 353	Salt Creek	24	509.8	0.82	3,648,650	0.95	9.24	0.48			
S 353	S 352	Salt Creek	24	507.7	1.56	3,648,480	0.82	9.24	0.41			
S 352	S 351	Salt Creek	24	501.7	1.72	3,648,320	0.91	9.24	0.46			
S 351	S 350	Salt Creek	24	17.4	0.40	3,648,310	1.11	9.24	0.55			
S 350	S 349	Salt Creek	24	403.1	0.32	3,648,110	1.27	9.24	0.63			
S 349	S 348	Salt Creek	24	20.7	0.29	3,648,100	1.16	9.24	0.58			
S 383	S 384	ROW	10	231.6	0.45	246,760	0.41	0.68	0.49			
S 384	S 386	ROW	10	260.5	0.42	246,750	0.41	0.68	0.50			
S 386	S 392	ROW	10	241.5	0.42	246,750	0.41	0.68	0.50			
S 392	S 394	ROW	10	246.5	0.41	246,750	0.42	0.68	0.50			
S 394	S 396	ROW	10	236.9	1.28	246,750	0.31	0.68	0.37			
S 396	S 398	ROW	10	278.8	0.47	246,750	0.40	0.68	0.48			
S 398	S 400	ROW	10	130.9	8.23	246,750	0.20	0.68	0.24			
S 400	S 402	ROW	10	357.7	19.82	246,750	0.17	0.68	0.20			
S 402	S 404	ROW	10	116.7	11.37	246,750	0.19	0.68	0.22			
S 404	S 406	ROW	10	168.7	8.88	246,750	0.20	0.68	0.24			
S 406	S 348	ROW	10	100.0	0.47	246,750	0.40	0.68	0.48			
S 348	S 347	Salt Creek	24	566.1	0.32	3,894,560	1.31	9.89	0.66			
S 347	S 282	Salt Creek	24	254.0	0.97	3,894,460	0.94	9.89	0.47			
S 282	S 280	Salt Creek	24	83.4	8.38	3,894,440	2.38	9.89	1.19	83.40	83.40	
S 280	S 278	Salt Creek	24	316.6	0.23	4,491,120	2.35	11.37	1.17	316.60	316.60	
S 278	S 276	Salt Creek	24	400.0	0.23	4,490,860	2.24	11.37	1.12	400.00	400.00	
S 276	S 274	Salt Creek	24	400.0	0.23	4,490,590	2.12	11.37	1.06	400.00	400.00	
S 274	S 272	Salt Creek	24	187.4	0.23	4,490,430	2.00	11.37	1.00	187.40	187.40	
S 272	S 270	Salt Creek	24	164.5	0.26	6,176,980	1.92	15.73	0.96	164.50		
S 270	S 412	Salt Creek	24	200.0	3.30	6,176,910	0.88	15.73	0.44			
S 412	S 268	Salt Creek	24	217.9	3.30	6,176,840	0.88	15.73	0.44			
S 268	S 266	Salt Creek	24	146.5	4.09	6,176,800	0.84	15.73	0.42			
S 266	S 264	Salt Creek	24	220.5	4.09	6,176,740	0.84	15.73	0.42			
S 264	S 262	Salt Creek	24	348.9	6.31	6,176,650	0.79	15.73	0.39			
S 262	S 341	Salt Creek	24	283.3	5.29	6,176,570	0.84	15.73	0.42			
S 341	S 260	Salt Creek	24	400.0	4.25	6,176,430	1.14	15.73	0.57			
S 260	S 258	Salt Creek	24	377.8	1.45	6,176,240	1.14	15.73	0.57			
S 258	S 256	Salt Creek	24	328.2	1.45	6,176,060	1.33	15.73	0.66			
S 256	S 376	Salt Creek	24	195.0	0.37	6,175,940	1.79	15.73	0.90	195.00		
S 376	S 389	Salt Creek	30	3.3	30.30	6,175,940	0.51	15.73	0.20			
S 389	S 375	Salt Creek	30	31.3	12.40	6,175,920	1.90	15.73	0.76			
S 375	S 252	Salt Creek	30	299.5	0.11	6,286,880	2.09	16.01	0.83			
S 252	S 250	Salt Creek	30	411.6	0.11	6,286,420	2.05	16.01	0.82			
S 250	S 374	Salt Creek	30	305.0	0.11	6,286,110	1.86	16.01	0.74			
S 374	S 244	Salt Creek	30	79.4	5.44	6,286,080	1.29	16.01	0.52			
S 244	S 242	Salt Creek	30	257.6	0.33	6,285,820	1.49	16.01	0.59			
S 242	S 240	Salt Creek	30	521.2	0.33	6,285,300	1.51	16.01	0.60			
S 240	S 238	Salt Creek	30	175.3	0.77	6,285,180	1.18	16.01	0.47			
S 238	S 236	Salt Creek	30	78.1	1.05	6,285,120	1.10	16.01	0.44			
S 236	S 234	Salt Creek	30	565.7	1.05	6,284,760	1.10	16.01	0.44			
S 234	S 232	Wiley Road	30	564.8	1.05	6,284,390	1.10	16.01	0.44			
S 232	S 230	Wiley Road	30	312.3	1.54	6,284,170	1.37	16.01	0.55			

Ultimate Conditions, Wet Weather, Cumulative Model
Upsized Integrated Master Plan Model including Main Street Diversion

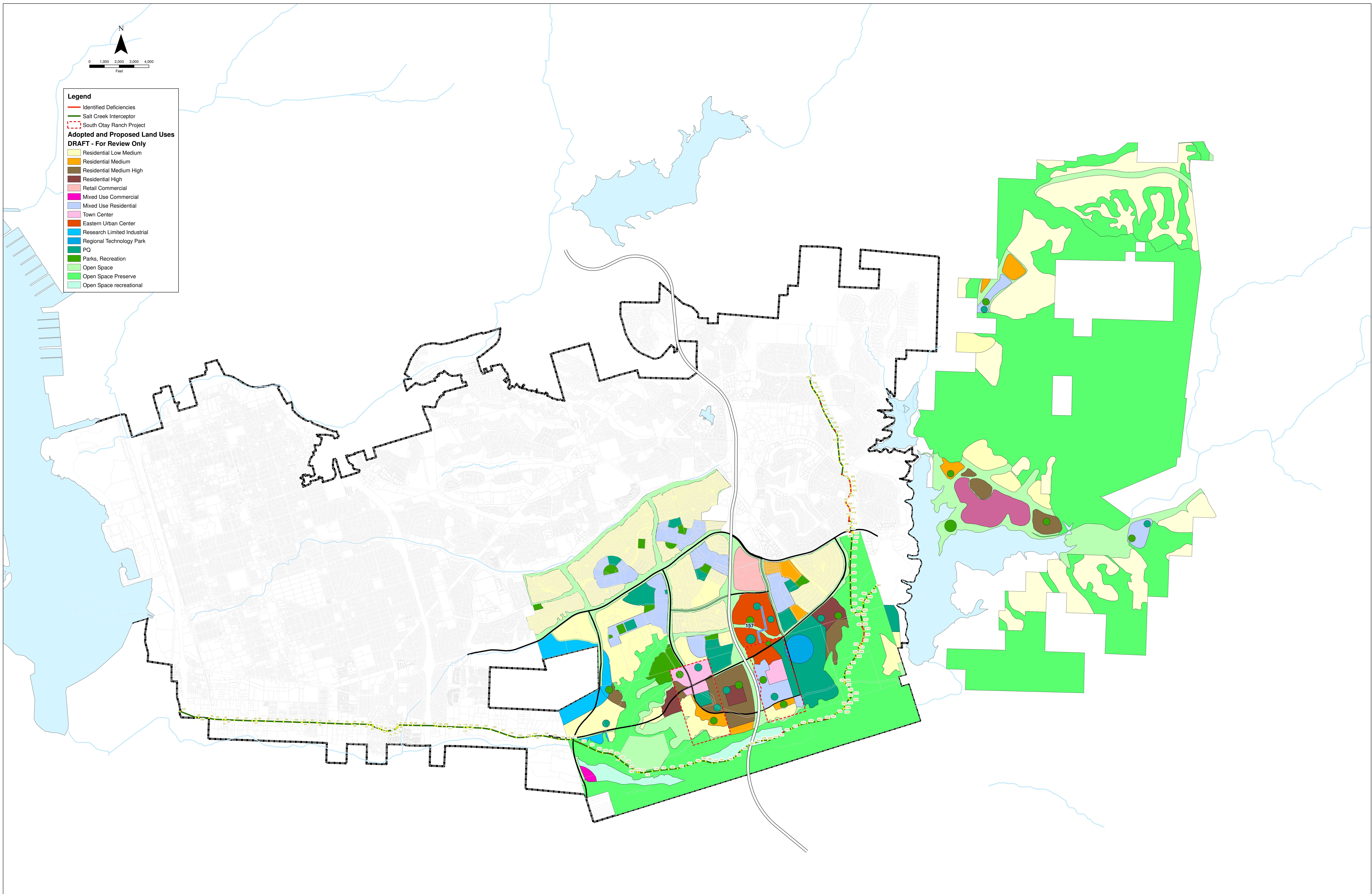
U/S Node	D/S Node	Street Name	Diameter (in)	Length (ft)	Slope (%)	Average Flow (gpd)	Max Depth	Peak Flow (cfs)	d/D	Length Exceeding d/D = 0.85	Length Exceeding d/D = 1	Notes
S 230	S 222	Wiley Road	30	596.8	0.31	6,283,530	1.56	16.00	0.62			
S 222	S 220	Wiley Road	30	593.5	0.31	6,282,870	1.56	16.01	0.63			
S 220	S 218	Wiley Road	30	519.4	0.31	7,331,550	1.72	18.57	0.69			
S 218	S 216	Wiley Road	30	600.0	0.31	7,330,890	1.73	18.57	0.69			
S 216	S 214	Wiley Road	30	600.0	1.06	7,330,500	1.39	18.57	0.56			
S 214	S 212	Wiley Road	36	510.2	0.26	7,329,850	1.59	18.57	0.53			
S 212	S 210	Wiley Road	36	342.1	0.19	7,329,340	1.71	18.57	0.57			
S 210	S 208	Wiley Road	36	353.8	0.19	7,328,790	1.71	18.57	0.57			
S 208	S 206	Wiley Road	36	289.5	0.19	7,328,350	1.70	18.57	0.57			
S 206	S 204	Wiley Road	36	600.0	0.19	7,327,320	1.73	18.57	0.58			
S 204	S 202	Wiley Road	36	484.5	0.58	7,326,670	1.27	18.57	0.42			
S 202	S 200	Wiley Road	36	594.8	0.58	8,085,150	1.32	20.41	0.44			
S 200	S 198	Wiley Road	36	593.1	0.58	8,738,240	1.39	22.03	0.46			
S 198	S 196	Wiley Road	36	594.8	0.58	8,737,600	1.39	22.02	0.46			
S 196	S 194	Wiley Road	36	600.0	0.58	8,736,950	1.40	22.02	0.47			
S 194	S 192	Wiley Road	36	389.7	0.58	8,736,510	1.39	22.02	0.46			
S 192	S 190	Wiley Road	36	439.9	0.58	8,736,010	1.40	22.02	0.47			
S 190	S 188	Wiley Road	36	304.5	2.00	8,735,750	1.74	22.02	0.58			
S 188	S 186	Wiley Road	36	470.1	0.19	8,734,960	1.93	22.02	0.64			
S 186	S 184	Wiley Road	36	600.0	0.19	8,733,890	1.94	22.02	0.65			
S 184	S 182	Wiley Road	36	599.3	0.19	8,732,760	1.93	22.02	0.64			
S 182	S 180	Wiley Road	36	594.3	1.40	8,732,070	1.12	22.02	0.37			
S 180	S 178	Wiley Road	42	586.0	0.57	8,731,120	1.55	22.02	0.44			
S 178	S 176	Wiley Road	42	524.7	0.19	8,730,040	1.75	22.02	0.50			
S 176	S 175	Wiley Road	42	584.9	0.19	8,728,760	1.75	22.02	0.50			
S 175	S 373	Wiley Road	42	289.5	0.19	8,728,140	1.68	22.02	0.48			
S 373	S 372	Wiley Road	42	115.8	0.19	8,727,880	1.63	22.02	0.46			
S 372	S 168	Wiley Road	42	302.4	0.19	8,727,220	1.71	22.02	0.49			
S 168	S 166	Wiley Road	42	320.4	0.19	8,726,500	1.72	22.02	0.49			
S 166	S 164	Wiley Road	42	426.7	0.19	8,725,510	1.74	22.02	0.50			
S 164	S 162	Wiley Road	42	438.7	0.19	8,724,450	1.74	22.02	0.50			
S 162	S 160	Wiley Road	42	438.7	0.19	8,723,360	1.74	22.02	0.50			
S 160	S 157	Wiley Road	42	300.0	0.19	8,722,530	1.74	22.02	0.50			
S 157	S 155	Wiley Road	42	494.8	0.19	9,995,990	1.86	25.16	0.53			
S 155	S 153	Wiley Road	42	431.1	0.45	9,994,980	1.49	25.16	0.43			
S 153	S 151	Wiley Road	42	593.0	0.86	9,993,950	1.56	25.16	0.45			
S 151	S 149	Wiley Road	42	600.0	0.25	9,992,360	1.76	25.16	0.50			
S 149	S 371	Wiley Road	42	684.4	0.25	11,119,240	1.87	28.02	0.53			
S 371	S 145	Wiley Road	42	344.9	1.18	11,118,650	1.26	28.02	0.36			
S 145	S 143	Wiley Road	42	443.3	1.04	11,117,630	2.24	28.02	0.64			
S 143	S 141	Main Street	42	521.9	0.10	11,115,420	2.43	28.01	0.69			
S 141	S 139	Main Street	42	600.0	0.10	11,112,730	2.48	28.00	0.71			
S 139	S 137	Main Street	42	600.0	0.10	11,109,770	2.59	28.00	0.74			
S 137	S 345	Main Street	42	136.0	0.10	11,109,060	2.58	27.99	0.74			
S 345	S 135	Main Street	42	456.5	0.10	11,106,750	2.57	27.99	0.73			
S 135	S 133	Main Street	42	600.0	0.10	11,103,630	2.57	27.98	0.73			
S 133	S 128	Main Street	42	600.0	0.10	11,100,420	2.58	27.97	0.74			
S 130	S 125	Main Street	42	600.0	0.10	11,089,990	2.59	27.94	0.74			
S 128	S 127	Main Street	42	600.0	0.10	11,097,090	2.57	27.96	0.73			
S 127	S 130	Main Street	42	600.0	0.10	11,093,630	2.58	27.95	0.74			
S 125	S 123	Main Street	42	600.0	0.10	11,086,160	2.60	27.94	0.74			

Ultimate Conditions, Wet Weather, Cumulative Model
Upsized Integrated Master Plan Model including Main Street Diversion

U/S Node	D/S Node	Street Name	Diameter (in)	Length (ft)	Slope (%)	Average Flow (gpd)	Max Depth	Peak Flow (cfs)	d/D	Length Exceeding d/D = 0.85	Length Exceeding d/D = 1	Notes
S 123	S 121	Main Street	42	73.2	0.10	11,085,640	2.59	27.94	0.74			
S 121	S 119	Main Street	42	265.4	0.10	11,083,850	2.59	27.94	0.74			
S 119	S 117	Main Street	42	73.2	0.10	11,083,310	2.58	27.93	0.74			
S 117	S 115	Main Street	42	199.4	0.10	11,081,930	2.57	27.93	0.73			
S 115	S 113	Main Street	42	600.0	0.10	11,077,780	2.56	27.93	0.73			
S 113	S 111	Main Street	42	600.0	0.10	11,073,460	2.56	27.93	0.73			
S 111	S 408	Main Street	42	228.2	0.10	11,071,740	2.56	27.93	0.73			
S 408	S 109	Main Street	42	371.9	0.10	11,068,920	2.55	27.93	0.73			
S 109	S 107	Main Street	42	146.8	0.10	11,067,760	2.54	27.93	0.73			
S 107	S 86	Main Street	42	955.6	0.10	11,060,530	2.53	27.93	0.72			
S 86	S 85	Main Street	42	566.9	0.10	11,056,370	2.45	27.92	0.70			
S 85	S 84	Main Street	42	287.7	0.10	11,054,390	2.31	27.92	0.66			
S 84	S 83	Main Street	42	399.0	0.10	11,052,080	2.17	27.92	0.62			
S 83	S 81	Main Street	42	269.1	1.49	15,288,880	1.90	39.39	0.54			
S 81	S 70	Otay Valley Road	42	13.0	0.23	15,288,780	1.99	39.39	0.57			
S 70	S 80	Otay Valley Road	42	42.1	0.19	15,288,530	2.05	39.39	0.58			
S 80	S 79	Otay Valley Road	42	57.6	1.25	15,288,330	1.48	39.39	0.42			
S 79	S 78	Otay Valley Road	42	84.8	1.25	15,288,050	1.48	39.38	0.42			
S 78	S 77	Otay Valley Road	42	78.0	1.27	15,287,790	1.48	39.38	0.42			
S 77	S 76	Otay Valley Road	42	293.5	1.39	15,286,860	1.45	39.38	0.41			
S 76	S 75	Otay Valley Road	42	283.0	1.53	15,285,880	2.06	39.38	0.59			
S 75	S 74	Otay Valley Road	42	12.0	0.25	15,285,780	2.14	39.38	0.61			
S 74	S 73	Otay Valley Road	42	84.0	0.25	15,285,310	2.21	39.38	0.63			
S 73	S 82	Otay Valley Road	42	212.5	0.29	15,284,100	2.22	39.38	0.64			
S 82	S 72	Otay Valley Road	42	172.0	0.25	15,283,060	2.27	39.38	0.65			
S 72	S 71	Otay Valley Road	42	133.4	0.25	15,282,220	2.27	39.38	0.65			
S 71	S 55	Otay Valley Road	42	400.7	0.22	15,279,880	2.32	39.38	0.66			
S 55	S 54	Otay Valley Road	42	18.2	0.22	15,279,750	1.99	39.38	0.57			
S 54	S 62	Date Street	42	78.4	0.32	15,279,310	2.02	39.38	0.58			
S 62	S 61	Date Street	42	8.0	1.50	15,279,250	1.43	39.38	0.41			
S 61	S 53	Main Street	42	204.7	1.06	15,278,590	1.53	39.38	0.44			
S 53	S 65	Main Street	42	129.7	1.11	15,278,050	2.00	39.38	0.57			
S 65	S 66	Main Street	42	532.4	0.34	15,275,230	2.09	39.38	0.60			
S 66	S 60	Main Street	42	497.0	1.35	15,273,630	1.46	39.38	0.42			
S 60	S 59	Main Street	42	26.8	1.27	15,273,550	1.48	39.38	0.42			
S 59	S 58	Main Street	42	502.7	1.11	15,271,670	2.16	39.38	0.62			
S 58	S 57	Main Street	42	600.0	0.28	15,268,150	2.25	39.38	0.64			
S 57	S 68	Main Street	42	584.7	1.24	15,266,260	1.48	39.38	0.42			
S 68	S 67	Main Street	42	579.7	1.23	15,264,380	1.49	39.38	0.42			
S 67	S 56	Main Street	42	41.6	2.02	15,264,230	1.36	39.38	0.39			
S 56	S 63	Main Street	42	504.5	1.34	15,262,460	1.46	39.38	0.42			
S 63	S 64	Main Street	42	467.0	0.97	15,260,760	1.88	39.38	0.54			
S 64	S 69	Main Street	42	65.8	0.41	15,260,360	1.97	39.38	0.56			
S 69	S 100	Main Street	42	600.0	0.41	15,256,800	2.49	39.38	0.71			
S 100	S 99A	Main Street	42	285.7	0.21	15,894,490	2.57	40.93	0.73			
S 99A	S 99	Main Street	42	314.3	0.20	1,441,530	0.99	3.57	0.28			
S 99	S 98	Main Street	42	585.7	0.21	17,332,140	2.60	44.29	0.74			
S 98	S 97	Main Street	42	594.7	0.76	17,329,260	1.95	44.29	0.56			
S 97	S 96	Main Street	42	589.4	0.47	17,326,140	2.04	44.29	0.58			

Ultimate Conditions, Wet Weather, Cumulative Model
Upsized Integrated Master Plan Model including Main Street Diversion

U/S Node	D/S Node	Street Name	Diameter (in)	Length (ft)	Slope (%)	Average Flow (gpd)	Max Depth	Peak Flow (cfs)	d/D	Length Exceeding	Length Exceeding	Notes
										d/D = 0.85	d/D = 1	
S 96	S 95	Main Street	42	51.1	0.47	17,325,830	2.04	44.29	0.58			
S 95	S 101	Main Street	42	247.5	0.61	17,324,530	1.90	44.29	0.54			
S 101	S 87	Main Street	42	593.4	0.61	17,321,480	1.90	44.29	0.54			
S 87	S 90	Main Street	42	600.0	0.90	17,318,860	1.70	44.29	0.49			
S 90	S 92	Main Street	42	575.0	0.73	17,315,860	2.08	44.29	0.59			
S 92	S 91	Main Street	42	44.1	0.34	17,315,540	2.15	44.29	0.62			
S 91	S 93	Main Street	42	155.9	0.34	17,314,550	2.20	44.29	0.63			
S 93	S 89	Main Street	42	528.1	0.64	17,311,650	2.31	44.29	0.66			
S 89	S 94	Main Street	42	375.0	0.36	17,309,060	2.49	44.29	0.71			
S 94	S 369	Main Street	42	687.0	0.23	17,304,140	2.56	44.29	0.73			
S 369	S 88	Main Street	42	204.5	2.68	17,303,340	2.13	44.29	0.61			
S 88	S 105	Main Street	42	1110.4	0.38	17,296,240	2.21	44.29	0.63			



SALT CREEK INTERCEPTOR CAPACITY ANALYSIS EXHIBIT 1

081610 KM SD H:\Waterres\080 Chula Vista\10010582 South Otay Ranch ages\Graphics\Exhibit 1 Salt Creek Interceptor.mxd



...Dedicated to Community Service

2554 SWEETWATER SPRINGS BOULEVARD, SPRING VALLEY, CALIFORNIA 91978-2004
TELEPHONE: 670-2222, AREA CODE 619 www.otaywater.gov

January 28, 2014

Project: d0740-090161
Ref Project: d0261-010129
Activity: 3111

Stan Donn
City of Chula Vista
Development Services
276 Fourth Avenue
Chula Vista, CA 91910

Subject: Otay Ranch Village 2 SPA Amendment

Dear Mr. Donn:

As per Section 62.01 of the Otay Water District's (District) Code of Ordinances (enclosed), "To provide for future line extensions, pipelines installed within public streets must be constructed to the subdivision boundary and pipelines not installed within a public right-of-way must be installed in a District easement or right-of-way and must extend across the frontage of the parcel or parcels to be served."

The District has no objection to the Otay Ranch Village 2 SPA Amendment (Project). The District has approved the required Water Demand Study and Water Supply Assessment and Verification Report (WSA&V) at its November 6, 2013 board meeting. The developer is required to annex parcel 644-310-02-00 into an improvement district (see enclosed Section 60). The developer is required to submit improvement plans or applicable construction changes to existing improvement plans for District approval and extend the water mains to front all properties in question. If service laterals do not exist for the Project, the applicant must pay to have the District install them.

Prior to the purchase of any meter(s), irrigation plans must be: (1) designed to District water agency standards for reclaimed standards/specifications and (2) submitted to the District and the County Department of Environmental Health for plan check and approval. The developer must contact the District for further requirements.

Water availability is subject to all the District requirements in effect at this time and you are strongly encouraged to adopt water conservation measures throughout the development.

Each service must have an approved R/P Backflow Device purchased and installed by the owner. The fire service line will not be allowed to be connected to any buildings; the line will be intended for fire services purposes only. Failure to comply with this request will result in violation of the District's Code of Ordinances and will be subject to penalties determined by the District. The applicant should contact the Project's fire agency for any fire protection requirements.

The District's Engineering Public Services Division can be contacted at (619) 670-2241, or visit the website at www.otaywater.gov, for further requirements regarding inspection services, water main extensions, service laterals, backflow devices, and/or meter costs, and any other conditions that may have arisen since this letter was written for this Project.

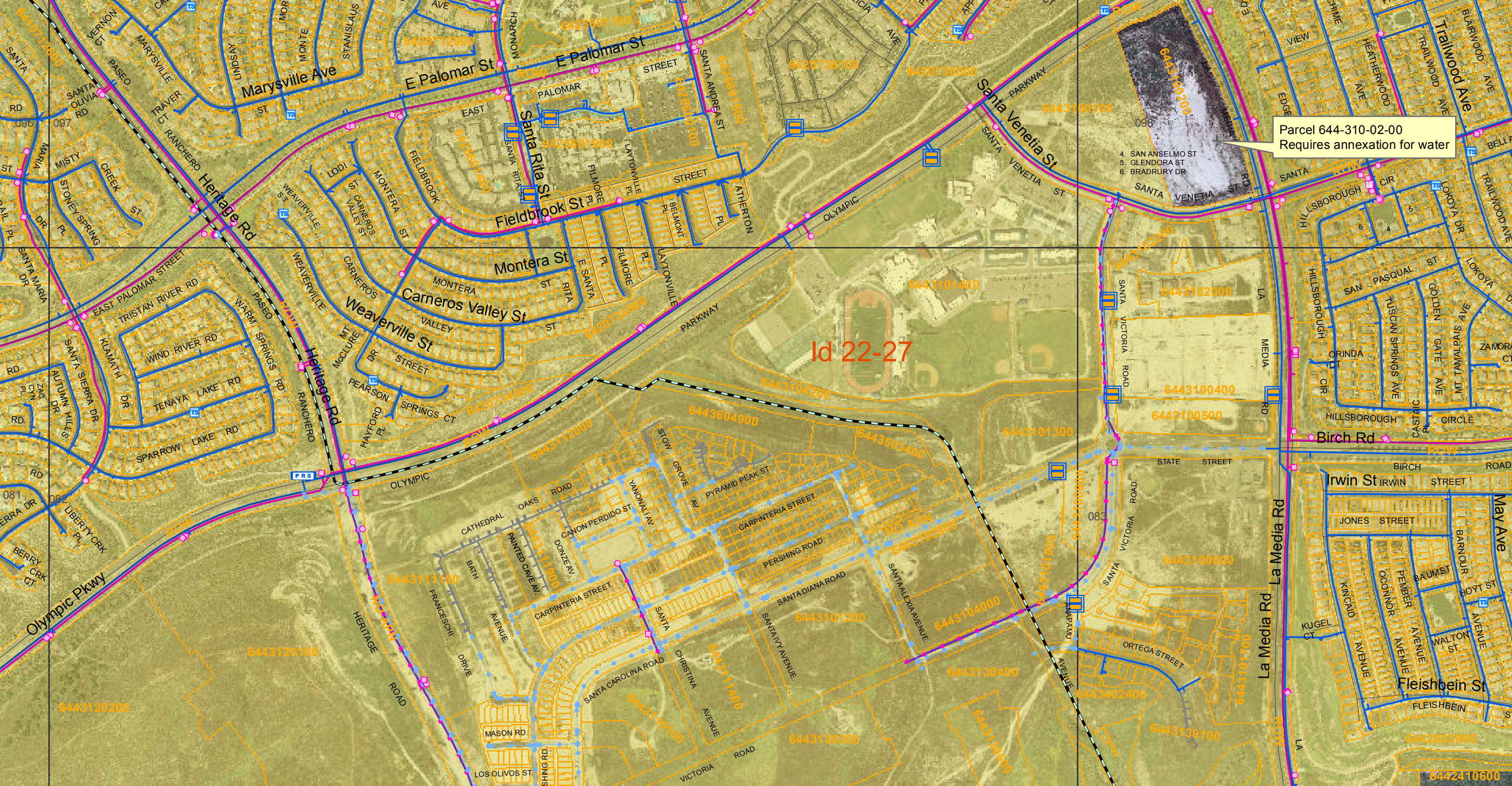
Sincerely,
OTAY WATER DISTRICT



Dan Martin, P.E.
Engineering Manager

DM:mlc

Enclosures: GIS Location Map
Code of Ordinances (Sections 23, 26, 38, 60, 62)



Parcel 644-310-02-00
Requires annexation for water

- 4. SAN ANSELMO ST
- 5. GLENDORA ST
- 6. BRADRUARY DR

Id 22-27

NO APN

DEXTER S. WILSON, P.E.
ANDREW M. OVEN, P.E.
STEPHEN M. NIELSEN, P.E.
DIANE H. SHAUGHNESSY, P.E.
NATALIE J. FRASCHETTI, P.E.

MEMORANDUM

605-826

TO: Nick Lee, Baldwin and Sons

FROM: ^{SMN} Stephen M. Nielsen, P.E., Dexter Wilson Engineering, Inc.

DATE: December 2, 2013

SUBJECT: Village 2 Comprehensive SPA Amendment Water System
Evaluation

Background

The Sectional Planning Area Plan (SPA Plan) for Villages 2, 3 and a portion of 4 was approved on May 23, 2006. In 2007, the development plan was amended twice through substantial conformance requests.

The Village 2 SPA property is split into many ownerships. Baldwin and Sons is the majority owner within Village 2 and is proposing a comprehensive SPA Plan Amendment. Within the Baldwin and Sons ownership, the amended development plan proposes adding 1,564 residential units, an elementary school, park, and CPF sites. The study also takes into consideration 197 additional units that have recently been approved in other areas of Village 2. A current ownership map and development layout is attached as Appendix A.

Purpose

The purpose of this technical memorandum is to provide an evaluation of the effect that this additional development will have on the Village 2 water system. A short discussion of water conservation will also be provided. This technical memorandum is a supporting document to the SPA Plan Amendment and Tentative Maps being processed by Baldwin and Sons. This memorandum will also provide the basis for updated water demands that will be necessary to prepare an updated Water Supply Assessment and Verification Study.

Land Use Summary

Table 1 summarizes the previously approved development in Village 2 along with the additional development being proposed by this Comprehensive SPA Amendment. The previously approved development includes the development approved with the original SPA Plan in 2006 along with the two substantial conformance requests processed in 2007 and the recent JPB amendment that added 197 units.

TABLE 1 BALDWIN AND SONS DEVELOPMENT PLAN SUMMARY COMPREHENSIVE SPA AMENDMENT				
Neighborhood	Acres	Approved Units	Proposed Add'l Units	Total Units
Residential (Baldwin and Sons)				
R-4b(a)	14.2	68	43	111
R-4b(b)	10.8	---	275	275
R-5b	4.2	35	3	38
R-6	12.6	126	0	126
R-8a	7.5	48	0	48
R-8b	3.8	29	0	29
R-8c	10.5	0	51	51
R-9b	8.4	68	7	75
R-10a	2.1	34	10	44
R-10b	2.4	51	10	61
R-11	9.9	146	60	206
R-12	23.6	325	275	600
R-13	10.4	137	0	137

**TABLE 1
BALDWIN AND SONS DEVELOPMENT PLAN SUMMARY
COMPREHENSIVE SPA AMENDMENT**

Neighborhood	Acres	Approved Units	Proposed Add'l Units	Total Units
R-14	9.1	165	0	165
R-15b	3.4	21	6	27
R-16b	1.8	35	(18)	17
R-17b(a)	8.7	75	(41)	34
R-17b(b)	4.6	---	95	95
R-18a(b)	4.3	27	(3)	24
R-18b(b)	0.8	5	0	5
R-19(b)	4.2	33	6	39
R-20	19.5	75	5	80
R-21(b)	17.1	50	3	53
R-23	13.5	48	45	93
R-24	2.4	28	31	59
R-25a	13.2	24	306	330
R-25b	2.7	24	(24)	0
R-26	---	75	(75)	0
R-27	8.3	61	114	175
R-31	1.1	0	25	25
Subtotal Residential Baldwin and Sons		1,813	1,209	3,022
Residential (Others)				
R-4a	---	62	0	62
R-5a	---	95	0	95
R-7a	---	82	0	82
R-9a	---	67	0	67
R-15	---	16	0	16
R-16	---	38	0	38
R-17	---	44	0	44
R-18	---	81	0	81
R-19	---	50	0	50
R-21	---	14	0	14
R-28	---	96	0	96
R-29	---	187	0	187
R-30	---	278	0	278
Subtotal Residential (Others)		1,110	0	1,110
Mixed Use/Commercial				
MU-1	1.8	10	28	38

TABLE 1 BALDWIN AND SONS DEVELOPMENT PLAN SUMMARY COMPREHENSIVE SPA AMENDMENT				
Neighborhood	Acres	Approved Units	Proposed Add'l Units	Total Units
MU-2	2.4	12	38	50
MU-3	4.3	38	52	90
C-1	12.5	0	235	235
Subtotal MU/Commercial	-	60	353	413
Industrial				
IND-1 (a)(others)	25.9	25.9	0	25.9
IND-1 (b)	33.7	33.7	0	33.7
IND-2	8.5	5.8	2.7	8.5
IND-3 ¹	28.0	29.0	(1.0)	28.0
Subtotal Industrial		94.4	1.7	96.1
Parks				
P-1	1.4	1.4	0	1.4
P-2	7.1	7.1	0	7.1
P-3	7.7	6.9	0.8	7.7
P-4	44.6	40.4	4.2	44.6
P-5	5.1	0	5.1	5.1
P-6	2.7	0	2.7	2.7
Subtotal Parks		55.8	12.8	68.6
CPF				
CPF-1	1.2	1.2	0	1.2
CPF-2	0.9	0.9	0	0.9
CPF-3a	0	1.1	(1.1)	0
CPF-3b	0	0.8	(0.8)	0
CPF-4	0	1.5	(1.5)	0
CPF-5	0	0.8	(0.8)	0
CPF-7	1.0	0	1.0	1.0
CPF-8	0.5	0	0.5	0.5
CPF-9 ¹	9.0	0	9.0	9.0
Subtotal CPF	12.6	6.3	6.3	12.6
Other				
S-1	10.3	10.3	0	10.3
S-2	9.5	0	9.5	9.5
Open Space	217.6	231.9	(19.3)	212.6
TOTAL		2,981	1,564	4,545

¹ CPF-9 is part of the IND-3 site.

Projected Water Demands

The projected water demands for Village 2 were evaluated in the November 2010 Water Resources Master Plan (WRMP) Amendment prepared for the Otay Water District. Table 2 summarizes the projected water demands from the 2010 WRMP. Table 3 summarizes the projected water demands based on the current development plan and Table 4 provides a comparison between the November 2010 WRMP and current projections. As shown, the projected water demand is increased by 467,809 gpd (524 Ac.Ft./yr.) in the current scenario as compared to the 2010 WRMP.

TABLE 2 OWD NOVEMBER 2010 WRMP VILLAGE 2 WATER DEMAND SUMMARY	
Description	Potable Water Demand, gpd
624 Zone	147,967
711 Zone	838,479
TOTAL	986,446

TABLE 3 VILLAGE 2 SPA AMENDMENT PROJECTED WATER DEMANDS				
Description	Land Use	Quantity	Demand Factor	Potable Water Demand, gpd
624 Zone				
R-4A	SF Residential	62 units	500	31,000
R-4B	MF Residential	386 units	255	98,430
Ind-1a	Industrial	25.9 ac	848	21,972
Ind-1b	Industrial	33.7 ac	848	28,589
Subtotal 624 Zone				179,992
711 Zone				
R-5a	MF Residential	95 units	255	24,225
R-5b	MF Residential	38 units	255	9,690
R-6	MF Residential	126 units	255	32,130
R-7A	MF Residential	82 units	255	20,910

**TABLE 3
VILLAGE 2 SPA AMENDMENT
PROJECTED WATER DEMANDS**

Description	Land Use	Quantity	Demand Factor	Potable Water Demand, gpd
R-8A	SF Residential	48 units	500	24,000
R-8B	MF Residential	29 units	255	7,395
R-8C	SF Residential	51 units	500	25,500
R-9A	MF Residential	67 units	255	17,085
R-9B	MF Residential	75 units	255	19,125
R-10A	MF Residential	44 units	255	11,220
R-10B	MF Residential	61 units	255	15,555
R-11	MF Residential	206 units	255	52,530
R-12	MF Residential	600 units	255	153,000
R-13	MF Residential	137 units	255	34,935
R-14	MF Residential	165 units	255	42,075
R-15A	SF Residential	16 units	500	8,000
R-15B	SF Residential	27 units	500	13,500
R-16A	MF Residential	38 units	255	9,690
R-16B	MF Residential	17 units	255	4,335
R-17A	MF Residential	44 units	255	11,220
R-17B(a)	MF Residential	34 units	255	8,670
R-17B(b)	MF Residential	95 units	255	24,225
R-18A(a)	SF Residential	38 units	500	19,000
R-18A(b)	SF Residential	24 units	500	12,000
R-18B(a)	SF Residential	43 units	500	21,500
R-18B(b)	SF Residential	5 units	500	2,500
R-19A	SF Residential	50 units	500	25,000
R-19B	MF Residential	39 units	255	9,945
R-20	SF Residential	80 units	500	40,000
R-21A	SF Residential	14 units	500	7,000
R-21B	SF Residential	53 units	500	26,500
R-23	SF Residential	93 units	500	46,500
R-24	MF Residential	59 units	255	15,045
R-25A	MF Residential	330 units	255	84,150
R-27	MF Residential	175 units	255	44,625
R-28	MF Residential	135 units	255	34,425
R-29	MF Residential	148 units	255	37,740
R-30	MF Residential	278 units	255	70,890

TABLE 3 VILLAGE 2 SPA AMENDMENT PROJECTED WATER DEMANDS				
Description	Land Use	Quantity	Demand Factor	Potable Water Demand, gpd
R-31	MF Residential	25 units	255	6,375
MU-1	Mixed Use-MF	38 units	255	9,690
MU-2	Mixed Use-MF	50 units	255	12,750
MU-3	Mixed Use-MF	90 units	255	22,950
MU-1	Mixed Use-Comm	1.8 ac	1,607	2,893
MU-2	Mixed Use-Comm	2.4 ac	1,607	3,856
MU-3	Mixed Use-Comm	4.3 ac	1,607	6,908
C-1	Mixed Use-MF	235 units	255	59,925
C-1	Mixed Use-Comm	14 ac	1,607	22,491
IND-2	Industrial	8.5 ac	848	7,208
IND-3	Industrial	19.0 ¹ ac	848	16,112
CPF	CPF	12.6 ac	714	8,996
S-1	School	10.3 ac	1,428	14,708
S-2	School	9.5 ac	1,428	13,566
Subtotal 711 Zone				1,274,263
TOTAL				1,454,255

¹Acreage adjusted to account for CPF site within this industrial site.

TABLE 4 VILLAGE 2 WATER DEMAND SUMMARY				
Pressure Zone	Projected Demand, GPD		Demand Increase	
	2010 WRMP	Current Proposed	GPD	AFY
624	147,967	179,992	32,025	36
711	838,479	1,274,263	435,784	488
TOTAL	986,446	1,454,255	467,809	524

Proposed Water System

The recommended water system for Village 2 was outlined in the May 2006 SAMP for the project. As shown by Table 2, the projected water demand for the JPB Development portion of the project is higher than what was estimated in the OWD WRMP. This information will be provided to OWD for their use in regional water supply planning and was also provided previously as the basis for a Water Supply Assessment and Verification report. The backbone water system for Village 2 has already been installed and is adequate to support the proposed additional development. No changes to the proposed Village 2 water system are necessary as a result of the proposed development plan changes presented in this memorandum.

Water Conservation

A water conservation plan was prepared for Village 2 as part of the project approval and is dated February 2006. In addition to standard water conservation measures, the multi-family residential units within Village 2 have committed to the following two additional measures:

- The use of water efficient irrigation systems
- The installation of evapotranspiration controllers

The proposed additional units within the Baldwin and Sons Amendment will be required to incorporate the above measures.

SMN:ps

APPENDIX A

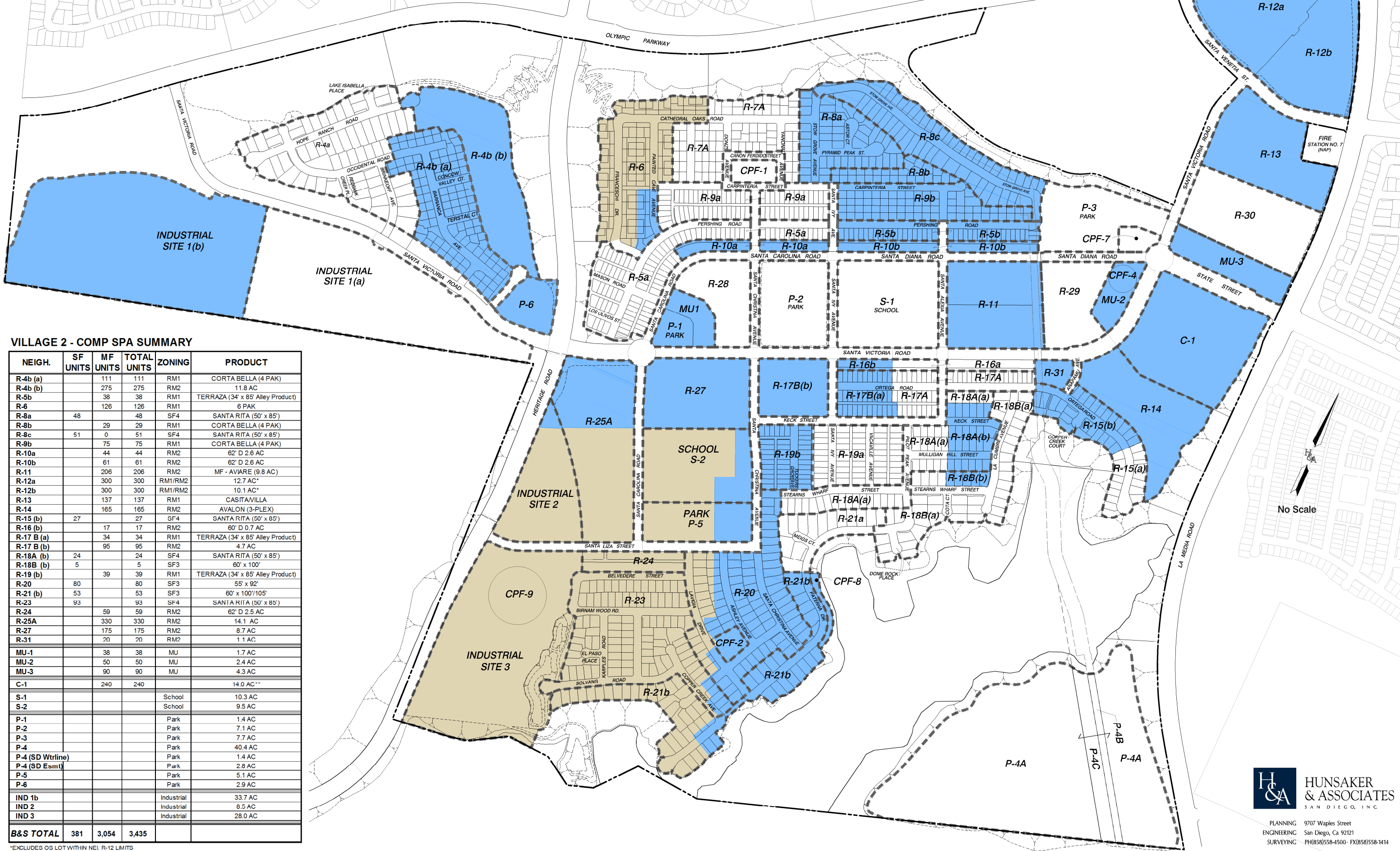
LAND USE/OWNERSHIP MAP

LEGEND

BALDWIN & SONS
SUNRANCH CAPITAL PARTNERS
OTHERS

COMP. SPA OTAY RANCH VILLAGE 2

CITY OF CHULA VISTA, CALIFORNIA



VILLAGE 2 - COMP SPA SUMMARY

NEIGH.	SF UNITS	MF UNITS	TOTAL UNITS	ZONING	PRODUCT
R-4b (a)		111	111	RM1	CORTA BELLA (4 PAK)
R-4b (b)		275	275	RM2	11.8 AC
R-5b		38	38	RM1	TERRAZA (34' x 85' Alley Product)
R-6		126	126	RM1	6 PAK
R-8a	48		48	SF4	SANTA RITA (50' x 85')
R-8b		29	29	RM1	CORTA BELLA (4 PAK)
R-8c	51	0	51	SF4	SANTA RITA (50' x 85')
R-9b		75	75	RM1	CORTA BELLA (4 PAK)
R-10a		44	44	RM2	62' D 2.6 AC
R-10b		61	61	RM2	62' D 2.6 AC
R-11		206	206	RM2	MF - AVIARE (9.8 AC)
R-12a		300	300	RM1/RM2	12.7 AC*
R-12b		300	300	RM1/RM2	10.1 AC*
R-13		137	137	RM1	CASITA VILLA
R-14		165	165	RM2	AVALON (3-PLEX)
R-15 (b)	27		27	SF4	SANTA RITA (50' x 85')
R-16 (b)		17	17	RM2	60' D 0.7 AC
R-17 B (a)		34	34	RM1	TERRAZA (34' x 85' Alley Product)
R-17 B (b)		95	95	RM2	4.7 AC
R-18A (b)	24		24	SF4	SANTA RITA (50' x 85')
R-18B (b)	5		5	SF3	60' x 100'
R-19 (b)		39	39	RM1	TERRAZA (34' x 85' Alley Product)
R-20	80		80	SF3	55' x 92'
R-21 (b)	53		53	SF3	60' x 100'/105'
R-23	93		93	SF4	SANTA RITA (50' x 85')
R-24		59	59	RM2	62' D 2.5 AC
R-25A		330	330	RM2	14.1 AC
R-27		175	175	RM2	8.7 AC
R-31		20	20	RM2	1.1 AC
MU-1		38	38	MU	1.7 AC
MU-2		50	50	MU	2.4 AC
MU-3		90	90	MU	4.3 AC
C-1		240	240		14.0 AC**
S-1				School	10.3 AC
S-2				School	9.5 AC
P-1				Park	1.4 AC
P-2				Park	7.1 AC
P-3				Park	7.7 AC
P-4				Park	40.4 AC
P-4 (SD Wtrline)				Park	1.4 AC
P-4 (SD Esmt)				Park	2.8 AC
P-5				Park	5.1 AC
P-6				Park	2.9 AC
IND 1b				Industrial	33.7 AC
IND 2				Industrial	8.5 AC
IND 3				Industrial	28.0 AC
B&S TOTAL	381	3,054	3,435		

*EXCLUDES OG LOT WITHIN NEI R-12 LIMITS

** PREVIOUSLY EXCLUDED CPF4 ACREAGE, NOW INCLUDES THAT 1.5 AC INTO "C-1" TOTAL

HUNSAKER & ASSOCIATES
SAN DIEGO, INC.

PLANNING 9707 Waples Street
ENGINEERING San Diego, Ca 92121
SURVEYING PH(858)558-4500 FX(858)558-1414

10-18-13

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May 9, 2014

Mr. Nick Lee
Baldwin and Sons
610 West Ash, Suite 1500
San Diego, CA 92101

RE: Otay Ranch Village 2 WSA – Notes and Clarifications

Dear Mr. Lee:

This letter provides additional notes and clarifications regarding the Water Supply Assessment and Verification report (WSA/V report) prepared by the Otay Water District (District) for the Otay Ranch Village 2 Specific Planning Area Amendment project. The WSA/V report was approved by the District's board of directors on November 6, 2013. The information contained in the letter is intended to confirm the findings of the WSA/V report and to assist with the application of the report to the project's Environmental Impact Report.

Notes and Clarifications

- 1) Accelerated Growth Forecast: The WSA/V report's findings rely in part on an increment of planned water demand and supply known as the Accelerated Growth Forecast (AGF), which is documented in the 2010 Urban Water Management Plan (UWMP) of the San Diego County Water Authority (Water Authority). In order to verify the account does not become oversubscribed, the Water Authority tracks usage of the AGF account and coordinates with its member agencies seeking to utilize the account in the preparation of WSA/V reports. I have reviewed this process with District staff, who confirmed the District coordinated with the Water Authority and verified the AGF account balance is sufficient to accommodate the additional demands of the project.
- 2) Supply-Demand Balance Tables: The WSA/V report references the normal year, dry-year, and multiple-dry-year supply-demand balance tables contained in the District's 2010 UWMP, but does not repeat these tables in the WSA/V report itself. **Attachment 1** to this letter presents these tables inclusive of the project demands and inclusive of the additional supply increment from the Water Authority corresponding to the AFG demand increment. Although not included in the WSA/V report, these tables are fully consistent with the report. The tables demonstrate the District's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the District's existing and planned future uses, including agricultural and manufacturing uses.

Please call me at (858) 514-1042, or e-mail me at mark.b.elliott@atkinsglobal.com, if you have any questions about the above notes.

Sincerely

ATKINS NORTH AMERICA, INC.



Mark Elliott, P.E.
Project Director

**Otay Water District -- Supply Demand Comparison Tables from 2010 UWMP
Modified for addition of Otay Ranch Village 2 Specific Planning Area Amendment
-- Consistent with WSA/V adopted by Otay Board Nov. 6, 2013**

Table 31

Supply and demand comparison — normal year (AF)

Water supply sources	2015	2020	2025	2030	2035
Water Authority ⁽¹⁾	40,483	41,321	44,015	45,974	48,614
Water Authority -- project AGF Increment ^(1a)	100	400	529	529	529
Recycled Water	4,400	5,000	5,800	6,800	8,000
Groundwater	0	0	0	0	0
Supply totals	44,983	46,721	50,344	53,303	57,143
District Demands ⁽²⁾	44,883	53,768	63,811	70,669	77,171
Additional Demands of ORV2 Project ^(2a)	100	400	529	529	529
Additional Conservation Target ⁽³⁾	0	-7,447	-13,996	-17,895	-20,557
Demand totals w/ project, w/ conservation	44,983	46,721	50,344	53,303	57,143
Difference	0	0	0	0	0
Difference as % of Supply	0.00%	0.00%	0.00%	0.00%	0.00%
Difference as % of Demand	0.00%	0.00%	0.00%	0.00%	0.00%

Notes:

⁽¹⁾ Water Authority supplies assume that the District demands meet its 2010 and 2015 SBX 7-7 gpcd water use targets

^(1a) Additional planned Water Authority supply corresponding to the Accelerated Growth Forecast increment of Demand (Water Authority 2010 UWMP p.2-5, 2-6), as sufficient to balance additional demands of ORV2 project per below

⁽²⁾ District demand projections based on SANDAG population projections and near-term annexations.
Table 6, Potable Water Deliveries - Projected, page 12

^(2a) Additional demands of the Otay Ranch Village 2 SPA project, beyond those accounted for in the base demand projections of the District and the Water Authority. See WSA/V p. 1, 2.

⁽³⁾ Additional conservation target is conservation required for District to meet its 2010 and 2015 SBX 7-7 gpcd target demands

**Otay Water District -- Supply Demand Comparison Tables from 2010 UWMP
Modified for addition of Otay Ranch Village 2 Specific Planning Area Amendment
-- Consistent with WSA/V adopted by Otay Board Nov. 6, 2013**

Table 32

Supply and demand comparison — single dry year (AF) ⁽¹⁾

Water supply sources	2015	2020	2025	2030	2035
Water Authority ⁽¹⁾	40,483	41,321	44,015	45,974	48,614
Water Authority -- project AGF Increment ^(1a)	100	400	529	529	529
Recycled Water	4,400	5,000	5,800	6,800	8,000
Groundwater	0	0	0	0	0
Supply totals	44,983	46,721	50,344	53,303	57,143
District Demands ⁽²⁾	44,883	53,768	63,811	70,669	77,171
Additional Demands of ORV2 Project ^(2a)	100	400	529	529	529
Additional Conservation Target ⁽³⁾	0	-7,447	-13,996	-17,895	-20,557
Demand totals w/ project, w/ conservation	44,983	46,721	50,344	53,303	57,143
Difference	0	0	0	0	0
Difference as % of Supply	0.00%	0.00%	0.00%	0.00%	0.00%
Difference as % of Demand	0.00%	0.00%	0.00%	0.00%	0.00%

Notes:

⁽¹⁾ Water Authority supplies assume that the District demands meet its 2010 and 2015 SBX 7-7 gpcd targets with single dry years increases of 106.3 % of normal year demand and 6.4% dry year increase as shown in Table 32.

^(1a) Additional planned Water Authority supply corresponding to the Accelerated Growth Forecast increment of Demand (Water Authority 2010 UWMP p.2-5, 2-6), as sufficient to balance additional demands of ORV2 project per below

⁽²⁾ District demand projections based on SANDAG population projections and near-term annexations. Table 6, Potable Water Deliveries - Projected, page 12.

^(2a) Additional demands of the Otay Ranch Village 2 SPA project, beyond those accounted for in the base demand projections of the District and the Water Authority. See WSA/V p. 1, 2.

⁽³⁾ Additional conservation target is conservation required for District to meet its 2010 and 2015 SBX 7-7 gpcd target demands

**Otay Water District -- Supply Demand Comparison Tables from 2010 UWMP
Modified for addition of Otay Ranch Village 2 Specific Planning Area Amendment
-- Consistent with WSA/V adopted by Otay Board Nov. 6, 2013**

Table 33
Supply and demand comparison — multiple dry-year events (AF)
Multiple-dry year Scenario (2016-2018)⁽¹⁾

	2016	2017	2018
Supply Totals, before project ^(2,4)	47,716	49,087	51,258
Water Authority -- project AGF Increment ^(1a)	160	220	280
Supply Totals with project	47,876	49,307	51,538
District Demand Totals, before project ⁽³⁾	47,716	49,087	51,258
Additional Demands of ORV2 Project ^(2a)	160	220	280
District Demand Totals, with project	47,876	49,307	51,538
Difference	0	0	0
Difference as % of Supply	0.00%	0.00%	0.00%
Difference as % of Demand	0.00%	0.00%	0.00%

Notes:

⁽¹⁾ Table 18, Water Supplies Current and Projected.

^(1a) Additional planned Water Authority supply corresponding to the Accelerated Growth Forecast increment of Demand (Water Authority 2010 UWMP p.2-5, 2-6), as sufficient to balance additional demands of ORV2 project per below

⁽²⁾ Water Authority normal year supply combined with supplemental water (from the Water Authority) and recycled water to meet dry year demand increase and projected growth) Water Authority supplies assume that the District demands meet its 2010 and 2015 SBX 7-7 gpcd targets with single dry years increase of 106.3 % of normal year demand.

⁽³⁾ District demand projections based on SANDAG population projections and near-term annexations with SBX 7-7 conservation achievement plus population growth and 6.4% dry year increase. Table 6, Potable Water Deliveries – Projected.

⁽⁴⁾ The Water Authority could implement its DMP. In this instances, the Water Authority may have to allocate supply shortages based on it equitable allocation methodology in its DMP.

Otay Water District -- Supply Demand Comparison Tables from 2010 UWMP
Modified for addition of Otay Ranch Village 2 Specific Planning Area Amendment
-- Consistent with WSA/V adopted by Otay Board Nov. 6, 2013

Table 34

Supply and demand comparison — multiple dry-year events (AF)

Multiple-dry year Scenario (2021-2023)⁽¹⁾

	2021	2022	2023
Supply Totals, before project ^(2,4)	49,795	51,804	54,564
Water Authority -- project AGF Increment ^(1a)	425	450	475
Supply Totals with project	50,220	52,254	55,039
District Demand Totals, before project ⁽³⁾	49,795	51,804	54,564
Additional Demands of ORV2 Project ^(2a)	425	450	475
District Demand Totals, with project	50,220	52,254	55,039
Difference	0	0	0
Difference as % of Supply	0.00%	0.00%	0.00%
Difference as % of Demand	0.00%	0.00%	0.00%

Notes:

See notes for Table 33

Table 35

Supply and demand comparison — multiple dry-year events (AF)

Multiple-dry year Scenario (2026-2028)⁽¹⁾

	2026	2027	2028
Supply Totals, before project ^(2,4)	53,682	55,779	58,831
Water Authority -- project AGF Increment ^(1a)	529	529	529
Supply Totals with project	54,211	56,308	59,360
District Demand Totals, before project ⁽³⁾	53,682	55,779	58,831
Additional Demands of ORV2 Project ^(2a)	529	529	529
District Demand Totals, with project	54,211	56,308	59,360
Difference	0	0	0
Difference as % of Supply	0.00%	0.00%	0.00%
Difference as % of Demand	0.00%	0.00%	0.00%

Notes:

See notes for Table 33

Otay Water District -- Supply Demand Comparison Tables from 2010 UWMP
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-- Consistent with WSA/V adopted by Otay Board Nov. 6, 2013

Table 36

Supply and demand comparison — multiple dry-year events (AF)

Multiple-dry year Scenario (2031-2033)⁽¹⁾

	2031	2032	2033
Supply Totals, before project ^(2,4)	57,094	59,641	62,794
Water Authority -- project AGF Increment ^(1a)	529	529	529
Supply Totals with project	57,623	60,170	63,323
District Demand Totals, before project ⁽³⁾	57,094	59,641	62,794
Additional Demands of ORV2 Project ^(2a)	529	529	529
District Demand Totals, with project	57,623	60,170	63,323
Difference	0	0	0
Difference as % of Supply	0.00%	0.00%	0.00%
Difference as % of Demand	0.00%	0.00%	0.00%

Notes:

See notes for Table 33

Table 37

Supply and demand comparison — multiple dry-year events (AF)

Multiple-dry year Scenario (2036-2038)⁽¹⁾

	2036	2037	2038
Supply Totals, before project ^(2,4)	60,368	62,173	64,546
Water Authority -- project AGF Increment ^(1a)	529	529	529
Supply Totals with project	60,897	62,702	65,075
District Demand Totals, before project ⁽³⁾	60,368	62,173	64,546
Additional Demands of ORV2 Project ^(2a)	529	529	529
District Demand Totals, with project	60,897	62,702	65,075
Difference	0	0	0
Difference as % of Supply	0.00%	0.00%	0.00%
Difference as % of Demand	0.00%	0.00%	0.00%

Notes:

See notes for Table 33

